

# NUTRITION TODAY

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330<sup>th</sup> Medical Brigade

Early to bed and  
early to rise

Makes a body  
healthy  
wealthy  
and wise

Staying Healthy

Eating Right

There all sorts of tools on the internet today  
to help you

Understand the principles of good nutrition

Answer general nutrition questions

Answer specific nutrition questions

Provide materials

## Nutrition

the process by which an individual takes in and utilizes food material

## Nutrition

is the study of the relationship between food and drink in their relationship to health or disease, especially in determining an optimal diet for purposes of health, weight loss, bodybuilding, or other purposes.

Eat a nutritious diet

reduce the risk for death or disability  
due to chronic diseases such as

- heart disease
- certain cancers
- diabetes
- stroke
- osteoporosis

A gap remains between recommended dietary patterns and  
what Americans actually eat

Be Physically Active Every Day

Feel Fit for Life

2000 steps a day every day

## Nutrients:

substances necessary for sustaining life

### Vitamins and minerals

Natural substances contained in a wide variety of foods that have long been recognized as essential to maintaining healthy body systems. Scientists have defined specific daily amounts of vitamins and minerals that are necessary for good health.

### Carbohydrates, proteins, and fats

Compounds found in foods that the body uses to generate energy or build cells.

### Phytochemicals:

Natural plant compounds that may provide a variety of health benefits. Many of the bright colors in fruits and vegetables come from phytochemicals.

Use the resources available to you

Print

Web

Video



The USDA is responsible government agency to educate  
The public about food.

USDA provides nutrition education services and products

Standards

Materials

Nutrition education information and materials

USDA education initiatives include

Food Guide Pyramid

ABC

One of the products you can use is a program called

AIM

BUILD

CHOOSE

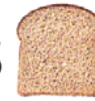
Basic nutrition education for literate adults

USDA has materials available for purchase



Nutrition and Your Health:

## DIETARY GUIDELINES FOR AMERICANS



**Aim**  
*for Fitness*

**BUILD**  
*a Healthy Base*

**CHOOSE**  
*Sensibly*

*...for good health*



## DIETARY GUIDELINES FOR AMERICANS



### AIM FOR FITNESS...

- ▲ Aim for a healthy weight.
- ▲ Be physically active each day.

### BUILD A HEALTHY BASE...

- Let the Pyramid guide your food choices.
- Choose a variety of grains daily, especially whole grains.
- Choose a variety of fruits and vegetables daily.
- Keep food safe to eat.

### CHOOSE SENSIBLY...

- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat.
- Choose beverages and foods to moderate your intake of sugars.
- Choose and prepare foods with less salt.
- If you drink alcoholic beverages, do so in moderation.



*...for good health*

Food Guide Pyramid is an outline of what to eat each day, and it calls for a variety of food and nutrients.

Visually stimulating

Easily understood by many age groups,  
Readers and non-readers

USDA newest challenge is to develop a tool  
To use to fight obesity

Fats, Oils & Sweets

**USE SPARINGLY**

**KEY**

■ Fat (naturally occurring and added)

▼ Sugars (added)

These symbols show fats and added sugars in foods.

Milk, Yogurt &  
Cheese Group

**2-3 SERVINGS**



Meat, Poultry, Fish, Dry Beans,  
Eggs & Nuts Group

**2-3 SERVINGS**



Vegetable Group

**3-5 SERVINGS**



Fruit Group

**2-4 SERVINGS**



Bread, Cereal,  
Rice & Pasta  
Group

**6-11  
SERVINGS**



Food Pyramid promotes  
low fat diets  
rich in:  
fiber  
grain products  
fruits and vegetables

# Current "Buzzwords" in Nutrition

Chemoprevention

Designer Food

Functional Food

Nutraceutical

Pharmafood

Phytochemical



**Chemoprevention** -- Using one or several chemical compounds to prevent, stop, or reverse the development of cancer

**Designer Food** -- Processed foods that are supplemented with food ingredients naturally rich in disease-preventing substances

**Functional Food** -- Any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains

**Nutraceutical** -- Specific chemical compounds in food, including vitamins and additives, that may aid in preventing disease

**Pharmafood** -- Food or nutrient that claims medical or health benefits, including the prevention and treatment of disease

**Phytochemical** – Non-nutrient plant chemicals that contain protective, disease-preventing compounds

**Antioxidants:** Plant substances that protect the body by neutralizing free radicals, or unstable oxygen molecules

Free radicals and unstable oxygen molecules damage cause cellular damage by taking electrons from molecules in healthy cells

This damage is thought to be a fundamental cause of many degenerative diseases and the aging process

# Food and Phytochemicals

Cruciferous Vegetables

Allium vegetables

Cruciferous vegetables

Solanaceous vegetables

Umbelliferous vegetables

Compositae plants (artichoke)

Citrus fruits

Glucarates

# Food and Phytochemicals

## Food

Allium vegetables  
(garlic, onions, chives, leeks)

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Cruciferous vegetables  
(broccoli, cauliflower, cabbage,  
Brussels sprouts, kale, turnips,  
bok choy, kohlrabi)

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Solanaceous vegetables  
(tomatoes, peppers)

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Umbelliferous vegetables  
(carrots, celery, cilantro,  
parsley, parsnips)

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Compositae plants (artichoke)

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Citrus fruits  
(oranges, lemons, grapefruit)  
Glucarates

## Phytochemical(s)

Allyl sulfides

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Indoles/glucosinolates  
Sulfaforaphane  
Isothiocyanates/thiocyanates  
Thiols

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Lycopene

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Carotenoids  
Phthalides  
Polyacetylenes

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Silymarin

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Monoterpenes (limonene)  
Carotenoids

# Food and Phytochemicals, Contd

## FOOD

Other fruits (grapes, berries, cherries, apples, cantaloupe, watermelon, pomegranate)

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Beans, grains, seeds  
(soybeans, oats, barley, brown rice, whole wheat, flax seed)  
Protease inhibitors

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Herbs, spices (ginger, mint, rosemary, thyme, oregano, sage, basil, tumeric, caraway, fennel)

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Licorice root  
Green tea  
Polyphenols

## Phytochemicals

Ellagic acid  
Phenols  
Flavonoids (quercetin)

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Flavonoids (isoflavones)  
Phytic acid  
Saponins

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Gingerols  
Flavonoids  
Monoterpenes (limonene)

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Glycyrrhizin Catechins

Phytochemicals are being individually evaluated for their safety and effectiveness in disease prevention

Increasing consumption of fruits and vegetables increases intake of phytochemicals

A major prevention strategy has been the “5 A Day for Better Health” program sponsored by the Produce for Better Health Foundation

5 A Day for Better Health and Eat your Colors Every Day show the way to better health

EAT YOUR COLORS  
EVERY DAY

RED

GREEN

YELLOW

ORANGE

BLUE

WHITE



The more reds, oranges, greens, yellows, and blues you see on the plate, the more health promoting properties you are getting from your vegetable and fruit choices.

Nutrition research shows that colorful vegetables and fruit contain essential vitamins, minerals, fiber, and phytochemicals that your body needs to promote health and help you feel great.

Eat with your eyes

Color taste and texture

Plan your menus to eat colorfully

When you add **deep reds or bright pinks** to your daily diet, you are also adding a powerful antioxidant called **lycopene**.

Lycopene is found in **tomatoes, red and pink grapefruit, watermelon, papaya and guava.**

Diets rich in **lycopene** are being studied for their ability to fight heart disease and some cancers.

Specific phytochemicals in the red group that are being studied for their health-promoting properties include lycopene and anthocyanins.

Include a variety of RED fruits and vegetables in your diet to help maintain:

- \* A healthy heart
- \* Memory function
- \* A lower risk of some cancers
- \* Urinary tract health

***Include RED fruits and vegetables in your diet such as:***

Beets

Blood oranges

Cherries

Cranberries

Pink/Red grapefruit

Radicchio

Pomegranates

Radishes



***Include RED fruits and vegetables in your diet such as:***

Raspberries  
Red apples  
Red potatoes  
Red cabbage  
Red peppers  
Red pears  
Red grapes  
Red onions  
Rhubarb  
Strawberries  
Tomatoes  
Watermelon



Not only do green vegetables look great and taste wonderful, but they are rich in the phytochemicals that keep you healthy.

For example, the carotenoids lutein and zeaxanthin that are found in

spinach

collards

kale

broccoli

have antioxidant properties

and are being studied for their ability to protect your eyes by keeping your retina strong.

Also, research is being done on **cruciferous vegetables** like  
cabbage,  
Brussels sprouts  
cauliflower  
kale  
turnips

to see if they may **reduce the risk of cancerous tumors**.

**Greens** are also loaded with  
**essential vitamins (folate)**  
**minerals**  
**fiber**



Green is the color of chlorophyll, the solar energy trapper in plant leaves that makes all life on Earth possible.

For that reason leafy green vegetables deserve a special place in our diet.

Leaves are the biochemical guts of a plant where all the essential amino acids, fatty acids, vitamins, and carbohydrates are manufactured in the first place.

Calorie for calorie, leafy greens are great sources for calcium and protein.

Green vegetables contain varying amounts of phytochemicals such as lutein and indoles, which interest researchers because of their potential antioxidant, health-promoting benefits.

Include GREEN in your diet to maintain:

- \* A lower risk of some cancers\*
- \* Vision health
- \* Strong bones and teeth

***Go green every day with fruits and vegetables like these:***

Artichokes

Asparagus

Arugula

Avocados

Broccoli rabe

Broccoli

Brussels sprouts

Celery

Chayote squash

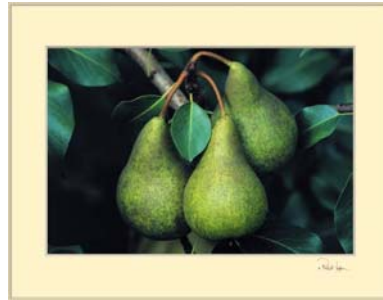
Chinese cabbage Bok Choy)

Cucumbers

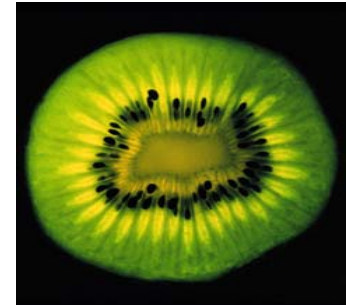
Endive



Green onion  
Green beans  
Green pears  
Green cabbage  
Green pepper  
Green apples  
Green grapes  
Honeydew melon



Kiwifruit  
Leafy greens  
Lettuce  
Leeks  
Limes  
Okra  
Peas  
Spinach  
Zucchini



**Orange**, the color of a blazing sun, is a **must have** in your daily diet.

**Orange** vegetables and fruits like **sweet potatoes**, **mangos**, **carrots**, and **apricots**, contain **beta-carotene**.

This **carotenoid** is a **natural antioxidant** that is being studied for its **role in enhancing the immune system**.

Carotenoids are being touted as a powerful health-protector

The orange group is rich in Vitamin C and Vitamin E

Folate, most often found in leafy greens, is also found in orange fruits and vegetables,

and is a B vitamin that may  
help prevent some birth defects  
and reduce your risk of heart disease

**Yellow** and **orange** fruits and vegetables contain varying amounts of **antioxidants** such as **Vitamin C** as well as **carotenoids** and **bioflavonoids**, two classes of **phytochemicals** that scientists are studying for their health-promoting potential.

Including **YELLOW/ORANGE** in your diet helps maintain:

- \* A healthy heart
- \* Vision health
- \* A healthy immune system
- \* A lower risk of some cancers\*

**Bright yellows** have many of the same perks as the orange groups:

high in essential vitamins

high in carotenoids

**Pineapple**, for example, is rich with Vitamin C, manganese, and the natural enzyme, bromelain

**Bromelain** is great to add to a meal to aid in digestion and reduce bloating.

Additionally, corn and pears are high in fiber. Yellow fruits and vegetables belong to many different families, but they all share the common bond of being health enhancing with great taste.



Yellows

***Choose Yellow/Orange fruits and vegetables like:***

Apricots

Butternut squash

Cantaloupe

Carrots

Golden kiwifruit

Grapefruit

Lemon

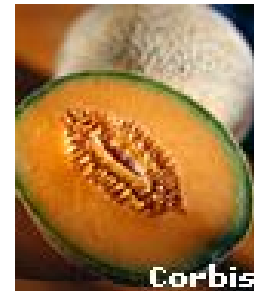
Mangoes

Nectarines

Oranges

Papayas

Peaches



Persimmons

Pineapples

Pumpkin

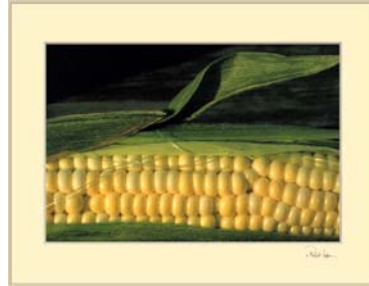
Rutabagas

Sweet corn

Sweet potatoes

Tangerines

Yellow beets



Yellow apples

Yellow watermelon

Yellow pears

Yellow figs

Yellow summer squash

Yellow peppers

Yellow potatoes

Yellow tomatoes

Yellow winter squash

Blues and purples add beautiful shades of tranquility and richness to your plate

Blues and purples add health-enhancing flavonoids, phytochemicals, and antioxidants.

Anthocyanin, is a phytochemical

Anthocyanins are

pigments responsible for the blue and purple color in vegetables and fruits

being studied for their role in the body's defense of harmful carcinogens

Blueberries, in particular, are rich in Vitamin C and folic acid and high in fiber and potassium.

**Blue/purple** fruits and vegetables contain varying amounts of health-promoting **phytochemicals** such as **anthocyanins** and **phenolics**, currently being studied for their **antioxidant** and **anti-aging** benefits.

Include **BLUE/PURPLE** in your diet to help maintain:

- \* **A lower risk of some cancers** \*
- \* **Urinary tract health**
- \* **Memory function**
- \* **Healthy aging**

**Diets rich in fruits and vegetables and low in saturated fat and cholesterol** may reduce the risk of some types of cancer, a disease associated with many factors

*Get **blue**/**purple** every day with foods such as:*

Black currants

Black salsify

Blackberries

Blueberries

Dried plums

Eggplant

Elderberries

Plums

Raisins



# PURPLES

Purple asparagus

Purple carrots

Purple figs

Purple Belgian endive

Purple grapes

Purple peppers

Purple potatoes



White vegetables from the onion family include

garlic

chives

scallions

leeks

any variety of onion

Onion family foods contain the phytochemical  
allicin.

Research is being conducted on **allicin** to learn how it may help:

**lower cholesterol**; **blood pressure** ; and  
**increase the body's ability to fight infections**

**White vegetables** are having research conducted on **indoles** and **sulfaforaphanes**,  
**phytochemicals in cruciferous vegetables** like  
cauliflower for how they may **inhibit cancer growth**

**Polyphenols**, another important **phytochemical** in pears  
and **green grapes**, for how they may **reduce the  
risk of certain cancers**



White, tan, and brown fruits and vegetables contain varying amounts of phytochemicals of interest to scientists.

These include **allicin**, found in the garlic and onion family.

The mineral **selenium**, found in mushrooms, is also the subject of research.

Including WHITE in your diet helps maintain:

- \* Heart health
- \* Cholesterol levels that are already healthy
- \* A lower risk of some cancers\*

***Get all the health benefits of white by including foods such as:***

Bananas  
Brown pears  
Cauliflower  
Dates  
Garlic  
Ginger  
Jicama  
Mushrooms



Onions

Parsnips

Shallots

Turnips

White potatoes

White peaches

White nectarines



<http://www.cdc.gov/nccdphp/dnpa/5ADay/campaign/color/index.htm>

<http://www.5aday.com/>

[http://www.orgsites.com/hi/hawaii5aday/\\_pgg2.php3](http://www.orgsites.com/hi/hawaii5aday/_pgg2.php3)

[http://www.nal.usda.gov/fnic/pubs\\_and\\_db.html](http://www.nal.usda.gov/fnic/pubs_and_db.html)

<http://www.usda.gov/cnpp/>

<http://www.cdc.gov/nccdphp/dnpa/5aday/index.htm>

[http://virtual.clemson.edu/groups/NIRC/Gen\\_info/nutrit.htm](http://virtual.clemson.edu/groups/NIRC/Gen_info/nutrit.htm)

<http://www.extension.iastate.edu/foodsafety.htm>

<http://ohioline.osu.edu/lines/food.html>;

<http://ohioline.osu.edu/hyg-fact/5000/5050.html>;

<http://ohioline.osu.edu/hyg-fact/5000/5051.html>

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